

**SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS**

I. TITLE OF COURSE: RT1104- Respiratory Physiology

II. COURSE DESCRIPTION: 4 credit hours
4 credit hours of lecture and 0 credit hours of lab per week.

This is a four hour lecture course that provides an in-depth discussion of the structure and function of the pulmonary and cardiovascular systems. Content includes laboratory analysis and diagnostic testing of the cardiopulmonary system. This course also presents a detailed study of the physiology of human respiration and circulation. Topics include functional cardiopulmonary anatomy, ventilation, diffusion, blood flow, gas transport, acid-base states, mechanics and regulation of ventilation and basic cardiac function.

For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite: Admission to the Respiratory Therapy Program.

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The Respiratory Therapy Program of Seward County Community College provides an educational forum responsive to the needs of the health care community with emphasis to maximize professional potential and foster the development of competent and compassionate respiratory care practitioners.

IV. TEXTBOOK AND MATERIALS:

1. Beachey, Will. (2018) Respiratory care anatomy and physiology (4th ed.). St. Louis: Elsevier.
2. Kacmarek, R. M., Stoller, J. K., and Heuer, A. J., (2020). Egan's fundamentals of respiratory care (12th ed.). St. Louis: Mosby.

V. SCCC OUTCOMES

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

- 1: Read with comprehension, be critical of what they read, and apply knowledge gained to real life
- 5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

VI. COURSE OUTCOMES:

1. Identify and explain the functions of anatomical structures of the upper and lower airways.
2. Describe the structure and function of the pulmonary vascular system.
3. Identify lobes and segments of the lungs.
4. Describe the structure and function of primary and accessory muscle groups affecting ventilation.
5. Describe static and dynamic lung compliance.
6. Differentiate between pressure differences across the lungs.
7. Explain the role of pulmonary surfactant.
8. Discuss gas laws governing gas delivery and ventilation.
9. Describe diffusion and perfusion of fluids in the cardiopulmonary system.
10. Compare and contrast lung volume and capacity measurement determined by pulmonary function testing.

11. Identify and discuss the function of cellular structures in the blood.
12. Describe structure and function of the circulatory system.
13. Describe components of the pulmonary and systemic vascular system.
14. Calculate quantity of oxygen transported in the blood.
15. Explain the clinical significance of the oxygen dissociation curve.
16. Differentiate between the forms of pulmonary shunting.
17. Calculate the shunt equation.
18. Define the types of hypoxia.
19. List three way in which carbon dioxide is transported in the plasma.
20. Explain the Haldane and Bohr effects.
21. Discuss the causes of acid-base imbalance.
22. Interpret arterial blood gas results.
23. Define ventilation-perfusion relationships.
24. Define respiratory quotient and respiratory exchange ratio.
25. Explain neuro-control of ventilation.
26. Describe the anatomy of the kidney.
27. Discuss the role of the kidney in acid-base balance.

VII. COURSE OUTLINE:

1. Anatomy of the respiratory system
2. Ventilation
3. Diffusion of pulmonary gases
4. Pulmonary function measurements
5. Circulatory system
6. Oxygen transport
7. Carbon dioxide transport and acid-base balance
8. Ventilation and perfusion relationships
9. Control of ventilation

VIII. INSTRUCTIONAL METHODS:

1. Textbooks and journals
2. Lecture and discussion
3. Clinical assignments
4. Out of class assignments
5. Audiovisuals
6. Canvas

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Textbooks and journals
2. Audiovisuals material
3. Laboratory equipment
4. Canvas

X. METHODS OF ASSESSMENT:

Outcome #1 will be assessed and measured by class participation and written assignments indicating comprehension of material read.

Outcome #5 will be assessed and measured by the student's critical care problem solving and fact gathering through comprehensive exams.

XI. ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobbie Academic building, room 149 A.

Syllabus Reviewed: 11/02/2021